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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/730,231

12/08/2003

Julian Adams

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MILLENNIUM PHARMACEUTICALS, INC.

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CAMBRIDGE, MA 02139

EXAMINER

COPPINS, JANET L

ART UNIT

PAPER NUMBER

1626

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/730,231	Applicant(s) ADAMS ET AL.	
	Examiner Janet L. Coppins	Art Unit 1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 7, 11 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 1-6, 8-10, 12-19, and 21-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

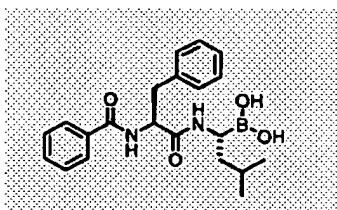
Claims 1-24 pending in the instant application.

Information Disclosure Statement

1. Applicants' Information Disclosure Statement (IDS), filed December 8, 2003, has been considered by the Examiner. Please refer to Applicants' copy of the PTO-1449 form submitted herewith.

Response to Restriction Requirement

2. Applicants' election with traverse of the specific compound of MG-353 on page 87 of the specification:



In the response filed October 21, 2004, is acknowledged.

3. The traversal is on the grounds that the claimed compounds share a common utility and share a substantial common structural core, and that there is no serious burden to examine the full scope of the claims.

Regarding Applicants' arguments, this is not found persuasive because the present situation, involving the so-called "Markush Practice", wherein a single claim defines alternatives (chemical or non-chemical) is governed by MPEP 803.02 (see above). However, in this special situation, the instant application has been filed under 35 U.S.C. III(a), so that the PCT lack of unity rules do not apply, yet the requirement of unity of invention of compounds included within a Markush group according to MPEP 803.02 applies as follows:

(i) When the Markush grouping is for alternatives of chemical compounds, they shall

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be regarded as being of a similar nature where the following criteria are fulfilled:

(A) all alternatives have a common property or activity, AND

(B)

(1) a common structure is present, i.e. a significant structural element is shared by all of the alternatives, OR

(B)

(2) in cases where the common structure cannot be the unifying criteria, all the alternatives belong to a recognized class of chemical compounds in the art to which the invention pertains.

(ii) In paragraph (i)(B)(1), above, the phrase “significant structural element is shared by all the alternatives” refers to cases where the compounds share a common chemical structure which occupies a large portion of their structures, or in case the compounds have in common only a small portion of their structures, the commonly shared structure constitutes a structurally distinctive portion in view of the existing prior art. The structural element may be a single component or a combination of individual components linked together.

(iii) In paragraph (i)(B)(2) above, the phrase “recognized class of chemical compounds” means that there is an expectation from the knowledge in the art that members of the class will behave in the same way in the context of the claimed invention. In other words, each member could be substituted one for the other, with the expectation that the same intended result would be achieved.

(iv) The fact that the alternatives if a Markush grouping can be differently classified shall not, taken alone, be considered to be justification for finding of a lack of unity of invention.

Instantly, (i)(A) is met because the Applicants have claimed that all the alternatives have a common utility, i.e. proteasome inhibitory activity. However, the unity of invention breaks down because neither of the (i)(B) criteria is met.

(i)(B)(1) is not met because the only structural element specifically shared by all the alternatives is the central core, the amino-alkyl-boron structure (variables **excluded**), which is not a “significant structural element” because the structural element is not distinctive in view of the existing prior art, i.e. it is not novel over any compound containing an amino-alkyl-boron linkage.

(i)(B)(2) is not met because all the alternatives do not belong to a recognized class of chemical compounds. There is no expectation in view of the chemical arts that a substitution of each member, one for the other as instantly claimed, would result in the same intended result. For

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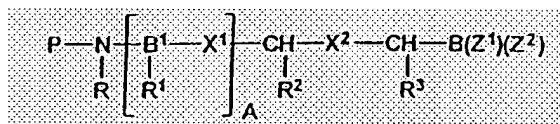
example, the substitution of a pyridyl at the R⁵ moiety would result in a different class of chemical compounds whereas the elected species of compounds (i.e. "MG-353") are useful as proteasome inhibitors.

4. Since the lack of unity criteria under Markush Practice is a two prong test, and since one of the prongs, (i)(B)(1) or (i)(B)(2), cannot be established, unity of invention is lacking and the holding of lack of unity for Markush groups is proper and is maintained.

Status of the claims

5. Claims 1-24 are pending in the application.

The scope of the elected subject matter is as follows: compounds according to the formula (1a)



as depicted in claim 1, wherein A is zero, R is hydrogen, R² and R³ are as defined, R⁵ is aryl, Z¹ and Z² are alkyl, hydroxy, or alkoxy, and P is R⁷-C(O)- or R⁷-NH-C(O)- or R⁷-O-C(O)- wherein R⁷ is non-heteroaryl containing.

As a result of the election and the corresponding scope of the invention identified supra, claims 7, 11, 20, and the remaining subject matter of claims 1-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to non-elected inventions. The withdrawn compounds contain varying functional groups such as heteroaryl moieties, etc which are chemically recognized to differ in structure and function. This recognized chemical diversity of the functional groups can be seen by the various classification of these functional groups in the U.S. Classification system, i.e. class 549 (furanlyl or thienyl), 548 (pyrrolyl), class 546 (pyridyl), etc. Therefore the subject matter that is withdrawn from consideration as being non-

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elected, differ materially in structure and composition and has been restricted properly since a reference which anticipates the elected subject matter would not even render obvious the withdrawn subject matter, and the fields of search are not coextensive.

6. In order to advance prosecution, the Examiner recommends canceling the withdrawn claims and subject matter when responding to this Office Action, i.e. claims 7, 11, and 20 as well as the non-elected subject matter from the remaining claims.

Claim Objections

7. Claims 1-6, 8-10, 12-19, and 21-24 objected to as containing non-elected subject matter.

8. Claims 1-6, 8-10, 12-19, and 21-24 objected to because of the use of the variable "P" in the structure of formula (1a). "P" is also the designated abbreviation for phosphorous within the I.U.P.A.C. nomenclature system, and its presence as a variable is confusing in the instant claims.

Conclusion

9. In conclusion, claims 1-24 are pending, claims 7, 11, are 20 withdrawn, and claims 1-6, 8-10, 12-19, and 21-24 are objected to.

Telephone Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janet L. Coppins whose telephone number is 571.272.0680. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph K. McKane can be reached on 571.272.0699. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Janet L. Coppins
January 10, 2005

for Kamal Saeed
Joseph K. McKane
SPE, Art Unit 1626